

**MOUNTING ASSEMBLY FOR A PAPER DISPENSER****FIELD OF INVENTION**

The present invention relates to a mounting assembly  
5 for a roll of sheet material in a paper dispenser comprising a  
bung, which fits into an end of a roll of paper with a central  
cylindrical opening to adapt that end of the roll to fit over one  
of two round abutments of the paper dispenser. The bung cannot  
be easily removed from the end of the roll of paper and if any  
10 removal attempt is applied to the portion of the bung that  
projects away from the roll of paper, a frangible connection to  
the portion of the bung buried in the end of the roll of paper is  
broken off, rendering the bung unusable.

**15 BACKGROUND**

Existing paper dispensers such as paper towel or toilet  
paper dispensers are often sensitive to the quality of paper  
being dispensed. When dispenser manufacturers design a dispenser  
for a specified paper in order to achieve maximum efficiency and  
20 performance of the dispenser, then obviously, that dispenser  
should be restricted to using only the specified paper, unless  
another paper with similar physical properties is used. However,  
purchasers often buy "specials" on paper which do not have  
similar physical properties to the specified paper and use it in  
25 substitution for the specified paper, which is often slightly  
higher in price.

Another issue relating to the control of the paper used in the dispenser has to do with the fact that paper companies often sell dispensers and paper as a system. Typically, the dispenser  
5 will be paid for and installed by the paper company in return for a guarantee that all of the paper for the dispenser will be purchased from the paper company at a pre-agreed price and for an agreed period of time. To ensure the guarantee is being complied with, the paper company must either enter into the purchaser's  
10 premise and perform periodic audits, or take the risk that the agreement might be breached. As such, there is a need for an efficient and effective means for enforcement of the guarantee.

Accordingly, it is an object of the invention to  
15 provide a mounting assembly for a dispenser, which will prevent the use of other than specified rolls of paper in the dispenser.

#### **SUMMARY OF THE INVENTION**

According to the invention there is provided a mounting  
20 assembly for mounting a roll of sheet material having a central cylindrical opening in a dispenser for dispensing sections of the roll of sheet material. The dispenser is one of a type having a housing with a main plate and a cover. The mounting assembly comprises a bung having a tubular body with a plurality of  
25 outwardly projecting ribs operative to tightly engage an interior cylindrical surface of the roll of sheet material. A short

cylindrical portion is frangibly connected to the tubular body. The tubular body has a round interior and a diameter larger than the short cylindrical portion.

5           A bung receptacle is mounted on one of the main plate and the cover for receiving and retaining the short cylindrical portion in sliding engagement. A conical roll engagement element is mounted on another of the main plate and the cover operative to slidably engage an end of the central cylindrical opening of  
10 the roll of sheet material opposite to the end into which the bung is inserted.

          Preferably, a flange extends outwardly at an intersection of the short cylindrical portion and the tubular  
15 body.

          The ribs have a sharp elongated edge. Preferably, the ribs each have a point directed towards the flange operative to resist withdrawal of the bung.  
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#### **BRIEF DESCRIPTION OF THE DRAWINGS**

          Further features and advantages will be apparent from the following detailed description, given by way of example, of a preferred embodiment taken in conjunction with the accompanying  
25 drawings, wherein:

Fig. 1 is front elevation view of a dispenser with the cover opened;

Fig. 2 is a perspective view of the cover for the dispenser lid or cover;

5 Fig. 3 is a side elevation view of the bung;

Fig. 4 is an end view of the bung of Fig. 3;

Fig. 5 is a perspective view of the bung inserted into an end of a roll of toilet tissue;

10 Fig. 6 is a top view of a bung receptacle mounted in the dispenser of Fig. 1;

Fig. 7 is a sectional view of the bung receptacle of Fig. 6 taken along the line BB in Fig. 6; and

Fig. 8 is a side view of the bung receptacle of Fig. 6.

## 15 DETAILED DESCRIPTION WITH REFERENCE TO THE DRAWINGS

The dispenser 10, as shown in Figs. 1 and 2, consists of a housing 12 with two half-rounded regions, one on either side, a cover 14, a main plate 27 and an associated bung receptacle 16 inserted in the main plate 27 near each end thereof. A roll of toilet paper 18 is fitted with a bung 30 (see Figs. 3-5) and the bung 30 inserted into engagement with the bung receptacle 16 (see Figs. 1, and 6-8). The dispenser 10 holds two toilet paper rolls, one for immediate use and another for convenient storage. As shown in Fig. 2, the cover 14 has two pin receiving holes 15 and 21 on either side which mount onto respective ones of two pins 17 and 19 on each end at the bottom

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of the dispenser 10 (see Fig. 1). Two conical roll engagement elements 20 and 22 are affixed to the cover 14 in a position such that, on closing the cover 14, each of elements 20 and 22 hold a corresponding toilet paper roll 18 in position to roll and  
5 dispense the paper. When the cover 14 is closed, locking portions 24 and 26 engage and interlock the cover 14 with the housing 12 of the dispenser 10.

The bung 30 shown in Figs. 3 to 5 consists of a short  
10 cylindrical portion 32, a flange 36 and a tubular body 35 to which are affixed six equally spaced apart outwardly directed radially spaced apart ribs 34. Each rib 34 has an angled return, which forms a point 38 before terminating at the flange 36. Ribs 34 have a triangular cross section with a sharp elongated edge as  
15 shown in Fig. 4. Fig. 5 shows the bung 30 inserted into a central cylindrical opening at an end of a roll of toilet paper 18. The ribs 34 cut into the walls of the toilet paper core 18 while the points 38 inhibit release or removal of the bung 30 from the cylindrical central opening thereof. Alternatively, the  
20 ribs could be spaced apart rings of saw tooth shaped teeth formed around the tubular body 35 combined with teeth directed parallel to the axis of the tubular body 35 or other suitable shapes. The short cylindrical portion 32 has only a frangible connection to the tubular body 35.

The bung receptacle 16, shown in Figs. 6 to 8, engages the bung 30, and has a base plate 42, a cylindrical collar 46, and a partial cylindrical wall 48 spaced inwardly of the cylindrical collar 46. On a side opposite to the legs 44 an upstanding post 50 projects outwardly from the base plate 42 and has a terminal end with an outwardly directed bump 51, which extends over the cylindrical collar 46 against angled surface 41. Three legs 44 are equi-spaced radially around and are located at the periphery of the base plate 42. Each leg 44 has an outwardly directed tab 52 parallel to the base plate 42.

Operationally, the three legs 44 are pressed into an opening in the main plate 27 of the dispenser 10 until tabs 52 snap outwardly and engage the main plate 27 of the dispenser 10, holding the bung receptacle 16 firmly in place. The short cylindrical portion 32 of the bung 30 fits between the end of cylindrical collar 46 and the partial cylindrical wall 48 with a bump 51 engaging a lip formed by the junction 40 of the ends of interior wall 37 and 39. Once in place, bung 30 is free to rotate relative to bung receptacle 16 but is held engaged with bung receptacle 16 by post 50 and bump 51 engaging angled surface 41. With bung 30 engaging bung receptacle 16, closing cover 14 causes conical roll engagement elements 20 and 22 to each engage a cylindrical opening of a corresponding roll of toilet paper 18.

Any attempt to remove bung 30 by twisting the short cylindrical portion 32 results in fracture of the frangible connection to tubular body 35 and destruction of bung 30. The frangible connection is formed at the junction 40 and is  
5 fractured easily as a result of a narrowing of the interior wall 39 of the short cylindrical portion 32 to a 30-degree angle 41. Obviously, other methods of creating the frangible connection between the short cylindrical portion 32 and tubular body 35 could be used such as intermittent circumferentially elongated  
10 slots or openings.

Ordinarily, bung 30 cannot be easily removed from a depleted roll of toilet paper 18 and re-used in a different roll of toilet paper 18. Thus, a new bung 30 is required for each new  
15 roll of toilet paper 18. This system effectively, prevents a dispenser user to install a non-specified roll of paper into the dispenser 10.

A bung receptacle 16 is mounted in each location where  
20 a roll is normally mounted. It is obvious that the bung receptacle 16 could also be mounted in the cover 14 with the conical roll engagement elements 20 and 22 being affixed to the main plate 27 of the housing 12. Obviously, the bung 30 and bung receptacle 16 are applicable not only to a toilet roll dispenser  
25 but to any film or sheet dispenser that has a central cylindrical opening.

Accordingly, while this invention has been described with reference to illustrative embodiments, this description is not intended to be construed in a limiting sense. Various modifications of the illustrative embodiments, as well as other  
5 embodiments of the invention, will be apparent to persons skilled in the art upon reference to this description. It is therefore contemplated that the appended claims will cover any such modifications or embodiments as fall within the true scope of the invention.